



# AQUAFIX<sup>Inc.</sup>

*Innovations in  
wastewater treatment.*

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## TECHNICAL UPDATE

# ANAEROBIC FOOD SUPPLEMENT

Anaerobic Food Supplement provides the building blocks to anaerobic life. This product provides methane-forming bacteria with a COD and micronutrient source specific for their growth and stabilization. This product is used in the following situations:

- #1. When methane formers cannot keep up with variable high loadings or persistent low loadings.
- #2. When operators are having trouble building methanogen populations.
- #3. During new digester start up.
- #4. To improve methane production.
- #5. To stabilize digester pH by improving digester microbiota.

This product shines in plants with variable loading, or consistently low loading.

When methanogens become stressed they lose the ability to produce methane, which leads to a buildup of volatiles acids. That build up reduces the pH which causes the digester to be acidic (sour) and leads to poor digester performance. Generally, a digester is considered sour if the pH in the digester is too low to allow for the production of significant amounts of methane. Generally this occurs below pH 6. If a digester is already sour, the pH should be adjusted before any other treatment is attempted. Sour digesters have a buildup of methanogen substrate which means the food supplement may actually make the problem worse. After a neutral pH has been reestablished, the food supplement can be used to improve pH stability.

Anaerobic digesters contain a variety of facultative bacteria, strict anaerobic bacteria, and archaea (such as methanogens) which allow a digester to break down volatile solids. Volatile solids are converted to soluble compounds by hydrolysis and then to short chain fatty acids by the acid generating bacteria. Once short chain volatile acids are present in an anaerobic system, the methane generators use the acids to produce biogas (primarily methane and carbon dioxide). Methane generating archaea are much more susceptible to adverse conditions than acid generating bacteria (acetogens) and this is why anaerobic food supplement is so helpful. Anaerobic food supplement supplies methanogens with the COD and micronutrients they need so their populations can build during periods of low nutrient loading.





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# DOSE RATES

With this product, start dose low and build up the dose over time. Dose rate is dependent on the conditions in each digester. Overtime an operator will learn what dose best suits their conditions and this will be a helpful tool in improving performance. Monitor conditions closely during build up phase, and adjust doses to suit your system.

Week 1	1-2 lbs per day per 100,000 gallon per day incoming flow
Week 2	3-4 lbs per day per 100,000 gallon per day incoming flow
Week 3	5-10 lbs per day per 100,000 gallon per day incoming flow
Maintenance Dose	Dependent on Desired Methane Generation

\*Dose rates can continue to be scaled up after Week 3 if needed for a larger boost in methane production.